

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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4/18/03*  
In re Application of:

Sanderson et al.

Serial No.: 09/436,360

Filed: November 9, 1999

For: SYNTHESIS OF ENERGETIC  
THERMOPLASTIC ELASTOMERS  
CONTAINING BOTH POLYOXIRANE  
AND POLYOXETANE BLOCKS

Examiner: R. Sergent

Group Art Unit: 1711

Attorney Docket No.: 5900.1US  
(21677-US-01)

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REPLY BRIEF

Assistant Commissioner for Patents  
Washington, D.C. 20231  
Attention: Board of Patent Appeals and Interferences

Sir:

Pursuant to 37 C.F.R. §1.193(b)(1), this Reply Brief is filed in triplicate in response to the Examiner's Answer mailed on February 10, 2003. This Reply Brief is submitted within two months of the mailing date of the Examiner's Answer pursuant to 37 C.F.R. §1.193(b)(1).

**APPELLANTS' REPLY TO EXAMINER'S RESPONSE TO ARGUMENT**

As set forth in Appellants' Appeal Brief, Appellants maintain that the Examiner has failed to establish a motivation to combine the cited references upon which the Examiner relies. The motivation proposed by the Examiner is not proper and, therefore, does not establish a *prima facie* case of obviousness. The Examiner's proposed motivation is improper because the cited references and the knowledge of one of ordinary skill in the art do not provide any motivation to combine to produce the claimed invention.

**Rejection of Claims 1-13 and 43-47 under 35 U.S.C. § 103**

**Rejection of claims 1-13 and 43-47 over Wardle, Biddle, and Hinshaw**

Wardle, Biddle, and Hinshaw do not provide a motivation to combine to produce the invention of claims 1-13 and 43-47. The Examiner states that "the use of oxirane-based polymers was known to be useful as soft segments within hard segment/soft segment energetic thermoplastic elastomers at the time of invention" because Biddle discloses "the use of polyglycidyl azide and polyglycidyl nitrate as soft blocks within such polymers." Examiner's Answer at p. 4. The Examiner also states that Hinshaw discloses that "such soft blocks contain secondary hydroxyl groups that are reactive with isocyanates" and that Hinshaw sets "forth procedures for enhancing the reactivity of oxirane-based polymers with polyisocyanates." *Id.* at p. 4-5. Therefore, the Examiner states "that it would have been obvious to utilize an oxirane-based segment as the soft segment of Wardle, because it has been held that it is *prima facie* obvious to utilize a known ingredient for its known function." *Id.* at 5.

However, the cited references do not provide a proper motivation to combine to produce the claimed invention. Wardle does not provide the requisite motivation to combine because, as acknowledged by the Examiner, Wardle does not teach or suggest that the B blocks are derived from oxirane monomers. Furthermore, while Biddle discloses that polyglycidyl nitrate and polyglycidyl azide are possible soft blocks used in its thermoplastic polymer, Biddle does not provide any motivation to use oxirane monomers in a thermoplastic polymer as claimed in the present invention. Therefore, Biddle does not teach or suggest a thermoplastic polymer having A blocks derived from oxetane monomers and B blocks derived from oxirane monomers. Hinshaw also does not provide the necessary motivation to combine with Wardle and Biddle because Hinshaw discloses that it is difficult to cross-link a compound having a secondary hydroxyl group, such as an oxirane compound.

Furthermore, since it is known in the art that secondary hydroxyl groups, such as those in oxirane compounds, are less reactive than primary hydroxyl groups, one of ordinary skill in the art would not be motivated to use an oxirane as the B block in the thermoplastic polymer claimed in the present invention. The Examiner states that "Wardle is based on various reactive groups having different reactivities; therefore patentees were acquainted with the problems and solutions associated with producing polymers from reactive units having decreased reactivities." *Id.* at p.

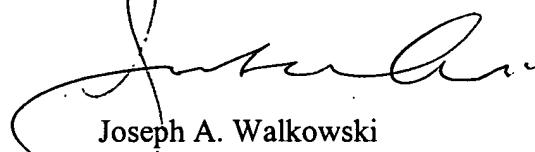
5. However, the functional groups having different reactivities in Wardle are those of the isocyanate moieties and not those of the hard or soft segments.

Since no motivation to combine the cited references exists, a *prima facie* case of the obviousness of claims 1-13 and 43-47 has not been established.

**CONCLUSION**

Pursuant to 37 C.F.R. §1.193(b)(1), Appellant respectfully requests acknowledgement of receipt and entry of this Reply Brief.

Respectfully Submitted,



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